

THERE IS CLAIMED:

1. An optical demultiplexing system for demultiplexing a multiplex which has at least three levels of granularity and includes m interleaved bands of wavelengths each of which includes p wavelengths, which system includes a 1-to- m deinterleaving demultiplexer for demultiplexing said multiplex into m bands of wavelengths and a 1-to- p deinterleaving demultiplexer for demultiplexing each of said m bands of wavelengths into p wavelengths, and in which system said numbers m and p are mutually prime.
2. The system claimed in claim 1 wherein said 1-to- m deinterleaving demultiplexer uses interleaved band filtering with a periodic transfer function.
3. The system claimed in claim 2 wherein said interleaved band filtering is based on Mach-Zehnder filters or on array waveguide gratings.
4. The system claimed in claim 1 wherein said 1-to- p deinterleaving demultiplexer uses channel filtering with a periodic transfer function.
5. The system claimed in claim 4 wherein said channel filtering is based on Mach-Zehnder filters or array waveguide gratings.
6. An optical multiplexing system for obtaining a multiplex which has at least three levels of granularity and includes m interleaved bands of wavelengths each of which includes p wavelengths, which system includes m p -to-1 interleaving multiplexers, each for multiplexing p wavelengths into a band of wavelengths, and an m -to-1 interleaving multiplexer for multiplexing said m bands of wavelengths into a fiber, and in which system said numbers m and p are mutually prime.